Re: Governor's Bill 6360 / Comprehensive Energy Strategy (CES)

Dear Members of the Energy and Technology Committee:

By way of introduction, my name is David Mann and I am the Chairperson of the Town of Westport, Connecticut's Green Task Force and I teach in the Building Efficiency and Sustainable Technology (BEST) program at Norwalk Community College. Among the courses I teach in the BEST program is Alternative & Renewable Energy – our fundamental look at the relationship between Energy and Environment.

I am greatly pleased to see the Governor and the State seriously addressing energy policy in a "comprehensive" manner. Furthermore, in my courses I teach and we carefully evaluate that each energy technology or source has its own inherent issues and therefore, I appreciate the Governor's stated approach to "not pick winners." With that in mind, I think that it is also important that we as a state understand the most current science and seriously consider the long term environmental and economic ramifications of the investments we make today and for the foreseeable future under this policy and do not support and publicly finance "losers."

Given its simple chemical structure and thus cleaner profile traditionally extracted natural gas has often been seen as a "bridge fuel" to help mitigate the environmental impacts (particularly climate forcing) of oil and coal. Hydraulic fracturing (fracking) has driven a boom in the availability of low cost natural gas over the past several years and has resulted in a price decoupling of natural gas and oil. The result has been conversion of facilities to natural gas has generally been economically advantageous. The Governor's proposed plan seeks to extend this trend in committing Connecticut to an energy policy that is heavily dependent on natural gas via a massive ($1.5 billion) investment in new natural gas infrastructure.

However, there is a significant flaw to this approach in that it does not consider the environmental costs associated with a decades long financial commitment to natural gas in Connecticut. Recent studies have demonstrated that fraked natural gas has a markedly different environ,mental impact than traditionally extracted natural gas. To that end, three major effects are just starting to be clearly understood:

1. Methane is among the most potent of greenhouse gases and due to 4% to 9% methane leakage in the fracking process, fraked natural gas does not provide the carbon reduction we have associated with natural gas in the past and may even be worse than coal. (*see: National Oceanic and Atmospheric Administration (NOAA) studies published in the Journal of Geophysical Research, Tollefson in the Journal of Nature, Wigley in the Climate Change, and Howarth, Santoro & Ingraffea in Climate Change*) Note, if the methane leakage issue is addressed through tight regulation of extraction procedures, natural gas could be attractive, but as Connecticut is not a gas producing state, we have little to no control over the enactment of such critical regulation.
2. It has become increasingly clear that fracking wastewater is hazardous. A May 2012 report by the Natural Resources Defense Council (*http://www.nrdc.org/energy/files/Fracking-Wastewater-FullReport.pdf*) urges a halt on expanding fracking without a close examination of the issue and tighter controls to address problems with both "flowback" and "produced water" that have demonstrated levels of potentially harmful pollutants, including salts, organic hydrocarbons, inorganic and organic additives, and radioactive material (NORM). Note, again Connecticut is not a gas producing state, but our increased consumption of natural gas would certainly lead to more fracking and fracking waste water. The prohibition of the

processing and disposal of fracking wastewater within our state is one possible method to begin addressing this concern.

3. Geophysicists and other scientists have been able to directly tie fracking and the re-injection of fracking wastewater to increased seismic activity opening a host of questions related to the advisability of this increasingly prevalent energy extraction technique.. (*see survey work by the U.S. Geological Survey*) Note, again Connecticut is not a gas producing state and has no direct control over legislation or regulation to address this issue and common sense dictates that our increased consumption will necessarily exacerbate the problem.

In summary and to mix metaphors, the jury is out and the early results are not good. Natural gas at present looks less like a bridge fuel and more like a bridge to nowhere.

Next, any energy policy must start with efficiency. Almost 40% of energy usage and greenhouse gas emissions are associated with buildings. Existing buildings represent about 90% of what we can reasonable anticipate of building stock will be comprised of in 25 years and critically, they still largely remain inefficient and a great opportunity to reduce energy consumption. Investments through CEEF has proven among the best any quasi governmental agency can make, returning three dollars for every dollar invested. As our stated CEEF policy notes: "The least expensive kilowatt-hour is the one not used. " With this in mind, despite the strong evidence against a rush to natural gas, should the state elect to proceed with an investment in expanded natural gas infrastructure, any facility's conversion to natural gas should require and offer State investment in efficiency improvements to the buildings shell and HVAC equipment upon conversion.

Lastly, in examining the State's recent initiatives with on site clean and renewable energy generation through the recently established state "green bank" CEFIA, we have seen great progress in leveraging rate and tax payer money to accelerate the roll-out of proven and increasingly competitive clean energy solutions. Programs such as the reverse Z-REC auction and Solarize Connecticut have proven and as C-PACE promises market economies will join hands with State initiatives to create a vibrant and transformative market in our state providing jobs, energy security and an improved environmental footprint. We should note that a host of additional tools can be tapped to accelerate this process. Of particular note is an expansion of virtual net metering to facilitate solar gardens and an extension of the State's property tax exemption of residential renewables to commercial properties.

I ask that in considering a Comprehensive Energy Strategy, the committee consider both the most recent science related to the effects of natural gas extraction and it's environmental impacts and what is the highest and best use of such a large scale capital investment and make distributed, clean, renewable energy generation and energy efficiency the cornerstones of our State's policy.

Thank you for your consideration.

Most sincerely yours,

David Mann